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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/904,147	07/11/2001	Shinsuke Mori	JP9-2000-0133US1	2401

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FERENCE & ASSOCIATES  
409 BROAD STREET  
PITTSBURGH, PA 15143

EXAMINER
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SHORTLEDGE, THOMAS E

ART UNIT	PAPER NUMBER
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2626

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/20/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<p align="center"><b>Office Action Summary</b></p>	Application No. 09/904,147	Applicant(s) MORI ET AL.	
	Examiner Thomas E. Shortledge	Art Unit 2626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 January 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6, 8-12 and 14-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8-12 and 14-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This communication is in response to Remarks, filed 01/03/2007.
2. Claims 1-6, 8-12 and 14-20 are pending.
3. The obviousness-type double patenting rejection of claims 1-6 and 15-20 has been withdrawn.

### ***Continued Examination Under 37 CFR 1.114***

4. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 01/03/07 has been entered.

### ***Response to Arguments***

5. Applicant's arguments with respect to claims 1-6, 8-12 and 14-20 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 101***

6. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

7. Claims 1-6, 8-12 and 14-20 are rejected under 35 U.S.C. 101 because

Regarding claims 1, 4, 8, 9, and 14-20 the following analysis was performed: Does the claimed invention fall within the within a §101 judicial exception - law of nature, natural phenomena or abstract idea? Yes, the claimed limitations describe and algorithmic process, and thus correspond to an abstract idea. Does the claimed invention cover a §101 judicial exception, or practical application by producing a physical transformation or a tangible result? No. The final steps of claims 1, 4, 8, 9 and 15-20 are directed to predicting the target word which in neither a physical transformation nor a tangible result. Further, regarding claim 14, the final step of a display is not a physical transformation, nor is a display for displaying provide for a tangible result.

Further, claims 15, 16, 19 and 20 recite "a storage medium..." or a "a program storage device readable by machine, tangible embodying a program of instructions executable b the machine...". These claims need to be rephrased to recite a computer readable medium enabling any underlying functionality to occur. The computer readable medium must be embodied with computer readable code executable within a computer or processor.

Claims 2-3, 5-6 and 10-12 are rejected for failing to cure the deficiencies of their respective parent non-statutory claims.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-6, 8, 9, 14-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chelba et al. (Exploiting Syntactic Structure for Language Modeling), in view of Dekai et al. (An Information-Theoretic Empirical Analysis of Dependency-Based Feature Types for Word Prediction Models).

As to claims 1, 15, 17 and 19, Chelba et al. teach:

a computer readable program (col. 1, page 225);

specifying a sentence structure consisting of multiple words, including a target word to be predicted (specifying a word phrase, and predicting a word within the phrase, page 225, col. 2, through page 226, col. 1);

employing said sentence structure to select a word (predicting the word based on the word sequence proceeding the word, page 226, col. 2); and

predicting said target word based on said word and/or word sequence that are selected (predicting the word based on the partial parse of the word history , col. 2, page 225).

Chelba et al. do not teach a word sequence that has a modification relationship with said target word to be predicted.

However, Dekai et al. teach a word prediction method using modification relationships between the target word and other words within the sentence (page 143).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the word prediction of Chelba et al. with the word modification of Dekai et al. to increase the accuracy in which a speech recognition method is able to predict the target word, as taught by Dekai et al. (page 143, section 4.2 and 4.3).

As to claim 2, Chelba et al. teach said word and/or word sequence constitute partial analysis tree structure in said sentence structure (using partial parses of the word history to predict the word, col. 2, page 225).

As to claim 3, Chelba et al. teach when multiple words and/or word sequences are selected, word prediction is preformed based on said words and/or word sequences that are selected (the word prediction is based on the word history, which can include a single word, or multiple words, col. 2, page 225, through col. 1, page 226).

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As to claims 4, 16, 18 and 20, Chelba et al. teach:

a computer readable program (col. 1, page 225);

specifying a word to be predicted by a different word and/or word sequence (specifying a word phrase, and predicting a word within the phrase, page 225, col. 2, through page 226, col. 1);

prediction said word using said different word/or word sequence that is specified (the word prediction is based on the word history, which can include a single word, or multiple words, col. 2, page 225, through col. 1, page 226); and

a transmitter, which reads said program from said storer and transmits said program (using the program within a automatic speech recognition device, col. 1, page 225).

Chelba et al. do not teach a word modification relationship.

However, Dekai et al. teach a word prediction method using modification relationships between the target word and other words within the sentence (page 143).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the word prediction of Chelba et al. with the word modification of Dekai et al. to increase the accuracy in which a speech recognition method is able to predict the target word, as taught by Dekai et al. (page 143, section 4.2 and 4.3).

As to claim 5, Chelba et al. teach said modification includes a modification direction, and said word to predicted modifies a prior word (the word history is used to

predict a word to the right of the last word within the history, where that word is able to modify a proceeding word, col. 2, page 225).

As to claim 6, Chelba et al. teach when multiple modifications are established between said word to be predicted and said different word and/or word sequence, a word is predicted for each of said modifications (the word prediction is based on the word history, which can include a single word, or multiple words, col. 2, page 225, through col. 1, page 226).

As to claim 8, Chelba et al. teach:

a predictor which employs a structure of a sentence consisting of multiple words, including a word to be predicted to select a word/or a word sequence, and which predicts said word based on said word and/or said word sequence that is selected (a predictor that uses the word history within a phrase to predict the needed word, where the word history has a relationship with the word to be predicted, a different history would predict a different word, col. 2, page 225, through col. 1, page 226).

Chelba et al. do not explicitly teach a store which stores a dictionary wherein text data that have been learned is written. However, the system is able to create all possible binary branching parses with all possible headword and no-terminal label assignments for the words within the word sequence. These partial parses are then used to predict the word. It would be obvious to one of ordinary skill in the art at the time of the invention that since these partial parse trees are created, then later used,



they would be stored once they are created, creating a store wherein text data that has been learned is written.

Chelba et al. does not teach a modification relationship with said word to be predicted.

However, Dekai et al. teach a word prediction method using modification relationships between the target word and other words within the sentence (page 143).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the word prediction of Chelba et al. with the word modification of Dekai et al. to increase the accuracy in which a speech recognition method is able to predict the target word, as taught by Dekai et al. (page 143, section 4.2 and 4.3).

As to claim 9, Chelba et al. teach a predictor which selects a word, and which predicts said word based on said word and/or said word sequence that is selected (specifying a word phrase, where the word history is created from the phrase, and is able to predict the word and its part of speech, page 225, col. 2, through page 226, col. 1).

Chelba et al. do not explicitly teach a store which stores a dictionary wherein text data that have been learned is written. However, the system is able to create all possible binary branching parses with all possible headword and no-terminal label assignments for the words within the word sequence. These partial parses are then used to predict the word. It would be obvious to one of ordinary skill in the art at the

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time of the invention that since these partial parse trees are created, then later used, they would be stored once they are created, creating a store wherein text data that has been learned is written.

Chelba et al. does not teach a modification relationship with said word to be predicted.

However, Dekai et al. teach a word prediction method using modification relationships between the target word and other words within the sentence (page 143).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the word prediction of Chelba et al. with the word modification of Dekai et al. to increase the accuracy in which a speech recognition method is able to predict the target word, as taught by Dekai et al. (page 143, section 4.2 and 4.3).

As to claim 14, Chelba et al. teach:

a specifier which specifies a relationship between a word to be predicted and another word and/or word sequence, and which predicts said word by employing said word and/or word sequence of said word (specifying a word phrase, from the headword to the last word before the word to be predicted, and using the specified word phrase to predict the word, page 225, col. 2, through page 226, col. 1);

a display, which displays said word that is predicted (usable within automatic speech recognition device, (col. 1, page 225), where it would be obvious to one of ordinary skill in the art, that such a device would be a computer system with a display,

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since the speech recognition is converted to text).

Chelba et al does not teach a modification relationship.

However, Dekai et al. teach a word prediction method using modification relationships between the target word and other words within the sentence (page 143).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the word prediction of Chelba et al. with the word modification of Dekai et al. to increase the accuracy in which a speech recognition method is able to predict the target word, as taught by Dekai et al. (page 143, section 4.2 and 4.3).

10. Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chelba et al. in view of Dekai et al. and further in view of Kuhn.

As to claim 10, Chelba et al. and Dekai et al. do not explicitly teach for a predetermined word or word sequence based on said text data, a frequency where at another predetermined word appears is stored in said dictionary.

However, Kuhn teaches predicting the word based on its frequency of occurrence stored within a knowledge base, (col. 1, page 348).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Chelba et al. and Dekai et al. with the methods taught by Kuhn to increase the ability of a speech recognizer to identify a word by assigning higher probabilities to words that have been the most recently used,

limiting the vocabulary needed, as taught by Kuhn, (page 350, col. 1 and col. 2).

As to claim 11, Chelba et al. and Dekai et al. do not explicitly teach said predictor calculates a probability value for a word sequence including a word that is predicted based on said frequency.

However, Kuhn teaches assigning higher probabilities to sequences containing words based on their frequency of use, (col. 1, page 348).

Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the teachings of Chelba et al. and Dekai et al. with the methods taught by Kuhn to increase the ability of a speech recognizer to identify a word by assigning higher probabilities to words that have been the most recently used, limiting the vocabulary needed, as taught by Kuhn, (page 350, col. 1 and col. 2).

As to claim 12, Chelba et al. teach a predictor selects, as a prediction result, a word sequence having the maximum probability value (ranking and selecting the word sequences, col. 1, page 228).

### ***Conclusion***

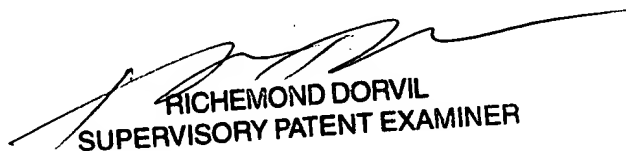
11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. See PTO-892.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas E. Shortledge whose telephone number is (571)272-7612. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571)272-7602. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TS  
02/16/07

  
RICHEMOND DORVIL  
SUPERVISORY PATENT EXAMINER